



Handwritten initials and date: 07/14/03 #10

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Re Application of )  
PAUL A. DVORAK, ET AL. ) Art Unit: 3652  
Application No. 09/726,078 ) Examiner: D. UNDERWOOD  
Filed: November 29, 2000 )  
For: HYDRAULICALLY ACTUATED )  
QUICK COUPLING DEVICE )  
Attorney Docket No. 00-422 )

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**BRIEF ON APPEAL**

Sir:

This is an appeal under 37 CFR § 1.191 to the Board of Patent Appeals and Interferences of the United States Patent and Trademark Office from the final rejection of Claims 1-27 and 29 of the above-identified patent application. These claims were indicated as finally rejected in an Office Action dated February 25, 2003. Three copies of this Appeal Brief are filed herewith, together with the \$320.00 fee required under 37 CFR § 1.17 (c). Also, please provide any extension of time (Petition for Extension of Time Under 37 CFR 1.136(a) attached in duplicate) which may be necessary and charge any fees which may be due to Account No. 03-1129 (Fee Transmittal attached in duplicate), but not to include any payment of issue fees.

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**(1) REAL PARTY OF INTEREST**

Caterpillar S.A.R.L. of Geneva, Switzerland is the assignee of the patent application and the real party of interest.

**(2) RELATED APPEALS AND INTERFERENCES**

There are no appeals or interferences related to this patent application (serial no. 09/726,078).

**(3) STATUS OF CLAIMS**

Claims 1-27 and 29 are pending in the application.

Claims 1-27 and 29 are rejected and are being appealed. These claims are shown in the Appendix attached to this Appeal Brief.

**(4) STATUS OF AMENDMENTS**

Appellants filed a Response after Final Rejection ("RFR") on November 22, 2002 prior to the Advisory Action mailed December 6, 2002. It was unclear in the December 6, 2002 Advisory Action whether or not the aforementioned RFR was considered. Therefore, Appellants filed a Request for Continued Examination on December 16, 2003. Thereafter, on February 25, 2003, the Examiner sent another Final Rejection considering the aforementioned RFR. However, said aforementioned RFR was not deemed to place the application in condition for allowance. Appellants filed a Notice of Appeal, prior to this Brief On Appeal, on May 15, 2003.

**(5) SUMMARY OF INVENTION**

The present invention relates generally to a quick coupling device for a skid steer loader machine that achieves power operation in a compact design.

Quick coupling devices are generally carried on the front of a loader arm and are used for quickly attaching and detaching various implements, such as buckets and the like. Some of these quick coupling devices may also be power-operated to reduce the necessity for manual intervention and to ease operation. However, most quick coupling

devices do not utilize an interconnection of the components that create a compact size with functional advantage. Appellants' design includes a pivot member located between a cylinder and a link. The pivot member is forced by the actuation of the cylinder to act upon the link to move a latch member between a disengaged position and an engaged position. The interconnection and functional relationship of these components, as explained in more detail below, provides a compact coupling device for hydraulically detaching and attaching an implement to a work machine.

With reference to Fig. 1, the present invention incorporates a quick coupling device 10 adapted for use on a work machine 14, such as a skid steer loader. The work machine 14 has a frame 18, a pair of spaced loader arms, one of which is shown at 22, connected at a first end to a rear portion 26 of the work machine 14, and an implement 34 disposed at a front portion 38 of the work machine 14 in connection with a second end of the loader arms 22.

Referring more particularly to Figs. 3-5, the quick coupling device 10 includes an attachment frame 42 for connecting the implement 34 to the work machine 14. A pair of tilt cylinders, one of which is shown at 46 (seen in Fig. 1), are connected at one end to the frame 18 of the work machine 14 and at an opposite end to the attachment frame 42 for controlling the tiltable movement of the implement 34. The attachment frame 42 has a centerline 50 extending therethrough and includes a pair of spaced housing assemblies 54, 58 that are partially enclosed by a cover plate 60. Only one of the pair of housing assemblies 54 will be described in detail to improve clarity and is shown in Figs. 3 & 4 with the cover plate removed. It should be understood, however, that the other of the pair of housing assemblies 58 includes identical features of that one housing assembly 54.

The housing assembly 54 includes top and bottom walls 62, 66, respectively. A pair of mounting brackets 70, 74 are connected in any suitable manner with the housing assembly 54. A partial chamber 78 is defined in a portion of the housing assembly 54 extending between the top and bottom walls 62, 66. An aperture 82 is defined through a portion of the bottom wall 66 located within the chamber 78. The aperture 82 is adapted to align with an aperture (not shown) in the implement 34 upon connection.

A latch member 86 is slidably disposed within the aperture 82 in the attachment frame 42 and is movable between a disengaged position 90 (Fig. 3) and an engaged position 94 (Fig. 4). The latch member 86 is positioned substantially vertically at a central portion of the bottom wall 66 and disposed approximately ninety degrees from the centerline 50 of the attachment frame 42. A link 102 has first and second end portions 106,110 with the first end portion 106 pivotally connected to the latch member 86 at a pin joint 114. The second end portion 110 of the link 102 includes a slot 118 therethrough (seen only in Fig. 5). A pin 122 extends through the link 102 between the first and second end portions 106,110 and projects outwardly to define a compressing member. A spring 126 circumferentially surrounds the link 102 between the second end portion 110 and the pin 122. The link 102 is disposed approximately at a forty-five degree angle from the centerline 50 of the attachment frame 42 and is angularly positioned in relation to the latch member 86 when the latch member 86 is in the disengaged position 90. The link 102 is disposed approximately at a ninety degree angle from the centerline 50 of the attachment frame and is substantially aligned with the latch member 86 when the latch member 86 is in the engaged position 94. A pivot member 130 has first and second end portions 134,138 and a central portion 142 with a tab 146 extending therefrom. The first end portion 134 of the pivot member 130 is pivotally connected by pin 150 to the mounting bracket 70 on the attachment frame 42. The second end portion 138 is pivotally connected by pin 154 within the slot 118 at the second end portion 110 of the link 102. A hydraulic cylinder 158 has a head end portion 162 and an extendible rod end portion 166. The head end portion 162 is connected by pin 170 to the bracket 74 of the attachment frame 42. The rod end portion 166 is fixedly connected at pin 174 to the tab 146 at the central portion 142 of the pivot member 130. The hydraulic cylinder 158 is disposed angularly from the centerline 50 of the attachment frame 42 and the latch member 86 when the latch member 86 is in either the disengaged or engaged 90,94 position. Referring more specifically to Fig. 4, a line 176 is defined through pins 150 & 174 and a line 177 is defined through pins 170 & 174 to form a substantial ninety degree angle therebetween.

Referring more particularly to Fig. 2, the hydraulic cylinders 158 are actuated through the use of a hydraulic circuit 178 for moving the latch member 86 between the

disengaged and engaged positions 90,94 (seen in Figs. 3 &4). It should be understood that, although hydraulic cylinders 158 and circuit 178 are disclosed, any suitable type of cylinder or circuit may be used to move the latch member 86. The hydraulic circuit 178 utilizes a supply of hydraulic fluid from a tank (not shown). A pump 182 is used to pressurize the hydraulic fluid. A spool valve 186 is connected in line with the pump 182 and is of a well-known design operable via a control lever 190 connected therewith. The spool valve 186 moves between three positions for directing the hydraulic fluid through the hydraulic circuit 178. The control lever 190 includes an electrical switch 194 movable between two positions 198,202 for energizing the spool valve 186 from a normally spring centered locked position 206 to a respective first operative position 210 or a second operative position 214. The switch 194 includes an electrical override switch 218 connected with the one position 202 related to the respective second operative position 214 of the spool valve 186. A diverter valve 222 is connected in line with the spool valve 186. The diverter valve 222 is movable between an implement position 226 for directing hydraulic fluid to the tilt cylinders 46 and a coupling position 230 for directing hydraulic fluid to the cylinder 158 in the quick coupling device 10 when the spool valve 186 is in the operative position 210. A drain 234 is provided for relieving the pressure in the hydraulic fluid when the spool valve 186 is in either the first or second operative position 210,214.

An alternate embodiment hydraulic circuit 240 is shown in Fig. 6 that actuates the hydraulic cylinders 158 for moving the latch member 86 between the disengaged and engaged positions 90,94 (seen in Figs. 3 & 4). It should be understood that the same reference numbers will be used in Fig. 6 to describe identical elements shown in Fig. 2.

The hydraulic circuit 240 utilizes a supply of hydraulic fluid from a tank 244. A pump 248 is used to pressurize the hydraulic fluid through a motor 252 and to charge a downline pump system (not shown). A charge relief 256 is used in the hydraulic circuit 240 in a well known manner. A dedicated electrical switch 262 is used in conjunction with the hydraulic circuit 240 and is movable between two positions 266,270 for energizing a diverter valve 280 through a pair of relays 284,288, respectively. The electrical switch 262 includes a normally spring centered neutral position 292. The diverter valve 280 is connected in line with the pump 248 and motor 252 to utilize charge flow within the hydraulic circuit 240. The

diverter valve 280 is movable between a locked position 296 for directing hydraulic fluid to the cylinders 158 when the electrical switch 262 is in position 266 and an unlocked position 300 for directing hydraulic fluid to the cylinders 158 when the electrical switch 262 is in position 270.

Under actual operating conditions, an operator (not shown) would normally have the diverter valve 222 set to the implement position 226 via any suitable control device (not shown). In the implement position 226, the operator (not shown) may move the control lever 190 to one of the positions 198 to electrically energize the spool valve 186 to the first operative position 210. The first operative position 210 allows a flow of pressurized hydraulic fluid to move from the pump 182 to one side of the tilt cylinders 46 through the spool and diverter valves 186,222 to extend the tilt cylinders 46. The spool valve 186 is spring centered to the locked position 206 in order to hold the tilt cylinder in the extended position. Next, the operator (not shown) may move the control lever 190 to the other of the positions 202 to electrically energize the spool valve 186 to the second operative position 214. To ensure that the operator (not shown) intends to move the control lever 190 in such a manner, the override switch 218 must also be energized simultaneously with the control lever 190. The second operative position 214 allows a flow of pressurized hydraulic fluid to move from the pump 182 to an opposite side of the tilt cylinders 46 through the spool and diverter valves 186,222 to retract the tilt cylinders 46.

In order to operate the quick coupling device 10, the operator (not shown) must move the diverter valve 222 from the implement position 226 to the coupling position 230 utilizing the control device (not shown). Once in the coupling position 230, the operator (not shown) may move the control lever 190 to one of the positions 198 to electrically energize the spool valve 186 to the first operative position 210. The first operative position 210 allows a flow of pressurized hydraulic fluid to move from the pump 182 to one side of the cylinder 158 through the spool and diverter valves 186,222 for extending the cylinder 158 and engaging the latch member 86. The spool valve 186 is spring centered to the locked position 206 in order to hold the latch member 86 in the engaged position 94. Next, in order to disengage the latch member 86, the operator (not shown) may move the control lever 190 to the other one of the positions 202 to electrically energize the spool valve 186 to the second

operative position 214. To ensure that the operator (not shown) intends to move the control lever 190 in such a manner, the override switch 218 must also be energized simultaneously with the control lever 190. The second operative position 214 allows a flow of pressurized hydraulic fluid to move from the pump 182 to an opposite side of the cylinder 158 through the spool and diverter valves 186,222 for retracting the cylinder 158 and disengaging the latch member 86. It should be understood that although the extension of the tilt cylinders 46 and the hydraulic cylinders 158 may not be completed simultaneously, both functions are available when the diverter valve 222 is set at the appropriate position, 226 or 230, respectively.

In the alternate embodiment of Fig. 6, the operator (not shown) moves the electrical switch 262 to one of the positions 266 to electrically energize the diverter valve 280 to the locked position 296. The locked 296 allows a flow of pressurized hydraulic fluid to move from the pump 248 to one side of the cylinder 158 for extending the cylinder 158 and engaging the latch member 86. The electrical switch 262 is spring centered to the neutral position 292 in order to hold the latch member 86 in the engaged position 94. Next, in order to disengage the latch member 86, the operator (not shown) moves the electrical switch 262 to the other one of the positions 270 to electrically energize the diverter valve 280 to the unlocked position 300. The unlocked position 300 allows a flow of pressurized hydraulic fluid to move from the pump 248 to an opposite side of the cylinder 158 for retracting the cylinder 158 and disengaging the latch member 86. The electrical switch 262 is spring centered to the neutral position 292 in order to hold the latch member 86 in the disengaged position 90. The ability to divert an amount of fluid from the hydraulic circuit 240 in such a manner is simple and requires few components so that actuation of the hydraulic cylinders 158 is quick and efficient without the need for additional hydraulic circuits.

## **(6) ISSUES**

- a) Whether Claims 1-7, 9, 11, 16, 18 and 29 are unpatentable under 35 U.S.C. § 102 (b) as being clearly anticipated by Wallberg (Patent No. 3,269,570);
- b) Whether Claims 10, 12-15, 17, and 19-27 are unpatentable under 35 U.S.C. § 103 (a) as being obvious over Wallberg;

c) Whether Claims 1-7 and 9-27 are unpatentable under 35 U.S.C. § 103 (a) over Albright (Patent No. 5,562,397) or Youngers (Patent No. 6,238,130) in view of Wallberg;

d) Whether Claim 10 is unpatentable under 35 U.S.C. § 103 (a) over Albright or Youngers in view of Wallberg, as applied to Claim 1 above, and further in view of Jones (Patent No. ~~5,597,283~~<sup>4726731</sup>) or Horton (Patent No. ~~5,727,342~~<sup>5966ESD</sup>); and

e) Whether Claim 8 is unpatentable under 35 U.S.C. § 103 (a) over Wallberg in view of Doering (Patent No. 6,332,748).

**(7) GROUPING OF CLAIMS**

Claims 1-27 and 29 form one group that is argued together for purposes of this appeal.

**(8) ARGUMENT**

**a. Claims 1-7, 9, 11, 16, 18 and 29 are not clearly anticipated under 35 U.S.C. § 102 (b) by Wallberg.**

Appellants' Independent Claims 1 and 29 are set forth below:

1. A hydraulically actuated quick coupling device, comprising:
  - an attachment frame including a centerline;
  - a latch member operatively associated with the attachment frame and movable between a disengaged position and an engaged position;
  - a link having first and second end portions, the first end portion of the link being connected to the latch member;
  - a pivot member having spaced first, second, and third contact positions located thereon, the first contact position being used to pivotally connect the pivot member to the attachment frame and the second contact position being used to pivotally connect the pivot member to the second end portion of the link; and



a cylinder having head and rod end portions, the head end portion being connected to the attachment frame and the rod end portion being connected at the third contact position on the pivot member, the cylinder being operable for moving the latch member substantially vertically between the disengaged and engaged positions.

29. A hydraulically actuated quick coupling device, comprising:

an attachment frame including a centerline;

a latch member operatively associated with the attachment frame and movable between a disengaged position and an engaged position;

a pivot member having spaced first, second, and third contact positions located thereon, the first contact position being used to pivotally connect the pivot member to the attachment frame and the second contact position being used to pivotally connect the pivot member with the latch member; and

a cylinder having head and rod end portions, the head end portion being connected to the attachment frame and the rod end portion being connected at the third contact position on the pivot member, the cylinder being operable for moving the latch member substantially vertically between the disengaged and engaged positions.

1. Discussion re: Patentability of Independent Claims 1 and 29 under 35 U.S.C. § 102 (b).

The Examiner states on page 2 of the Office Action dated February 25, 2003 that the "lower end of 9 in figure 1 of Wallberg comprises a latch member which moves substantially vertical". The Examiner further states on Page 5 that the slot 10 in Wallberg is deemed to guide the latch member 9 in a substantially vertical direction.

The Federal Circuit has held that the reference must be considered in view of all the claim limitations of the claimed invention. The mere absence of an explicit requirement cannot reasonably be held as an affirmative statement that the requirement is in the reference (see *In re Evanega*, 829 F.2d 1110, 4 USPQ2d 1249 (Fed. Cir. 1987)). Also, for anticipation under 35 U.S.C. § 102, the reference must teach every aspect of the claimed

invention either explicitly or impliedly. Any feature not directly taught must be inherently present (MPEP § 706.02). Furthermore, the stated test is whether a reference contains an 'enabling disclosure'... ." In re Hoeksema, 399 F.2d 269, 158 USPQ 596 (CCPA 1968). A reference contains an "enabling disclosure" if the public was in possession of the claimed invention before the date of invention." Such possession is effective if one of ordinary skill in the art could have combined the publication's description of the invention with his [or her] own knowledge to make the claimed invention." In re Donohue, 766 F.2d 531, 226 USPQ 619 (Fed. Cir. 1985). In other words, the reference must be operable. However, it is possible to make a 35 USC § 102(b) rejection even if the reference does not itself teach one of ordinary skill how to practice the invention, i.e., how to make or use the article disclosed. If the reference teaches every claimed element of the article, secondary evidence, such as other patents or publications, can be cited to show public possession of the method of making and/or using. In re Donohue, 766 F.2d at 533, 226 USPQ at 621. (MPEP § 2121.01).

A. Wallberg does not disclose all the claim limitations of Appellants' Claims 1 and 29.

As will be argued herein, the latch member 9 of Wallberg is not connected in a manner that achieves substantial vertical movement between the disengaged and engaged positions, as is claimed in Appellants' Claims 1 and 29. Further, the latch member 9 of Wallberg is not a "true" over-center design for a hydraulic quick coupler. The movement of the latch member 9 is confirmed by tracing its movement from engagement with the latch surface 21 at the fastening of the working tool to the frame (Column 2, lines 19-27) to seating in the notch 20 upon pressurization of the tube line (Column 2, lines 30-36). The cantilevered connection of the articulated arm 7 only allows angular movement between the latch surface 21 and the notch 20 even if constricted somewhat by the guide rail 10. Although not described in a sufficient detail to determine the exact function of the guide rail 10, it appears from review that the cantilevered connection is there to provide some angular movement within the guide rail 10. If this were not true, there would be no need for the cantilevered design because the substantial vertical movement of the latch member 9' in Fig.

3 would suffice in its place. However, it seems more obvious that the unique angle on the latch surface of Fig. 1 requires that the latch member 9 and the guide rail 10 of Fig. 1 allow for some angular movement and, therefore, the necessity for the cantilevered design. However, even if the guide rail 10 does restrict movement of the latch member 9, it appears obvious from the depiction of Fig. 1, that the movement of the latch member is not substantially vertical. In fact, Fig. 1 suggests that the movement of the latch member 9 is substantially angular in that it has a definite inclination even if guided within the slot of the guide rail 10. Given these arguments, it appears obvious that the movement of the latch member 9 of Fig. 1 is not substantially vertical between the disengaged and the engaged positions with or without the guide rail 10.

B. Wallberg does not teach every aspect of Appellants' Claims 1 and 29 in an enabling manner.

Wallberg does not teach or suggest substantial vertical movement of the latch member 9' (Fig. 3) with the use of the articulated arm 7 (Fig. 1) as is disclosed in Appellants' Claims 1 and 29. More correctly, Wallberg teaches two distinct inventions. The first invention (Fig. 1) includes an articulated arm 7 that is cantilevered in a manner that provides angular movement of the latch member 9 (as argued above in more detail). The second invention (Fig. 3) does not include an articulated arm but, in fact, the latch member 9' is directly connected with the piston rod 6 of the compression cylinder 4 for substantial vertical movement. Appellants' Claims 1 and 29 include a pivot member having spaced first, second, and third contact positions located thereon. It is assumed that the Examiner believed that the pivotal member of Appellants' Claims 1 and 29 is equivalent to the articulated arm 7 of Wallberg. However, even if the latch member 9' (Fig. 3) was included with the articulated arm 7 (Fig. 1) of Wallberg, the movement of the latch member 9' would still be angular due to the cantilevered connection of the articulated arm 7. Wallberg cannot anticipate Appellants' Claims 1 and 29 because it does not enable one skilled in the art to use his/her knowledge to take what is taught in Wallberg and create Appellants' Claims 1 and 29. Again, Wallberg teaches two distinct inventions that do not enable one skilled in the art to utilize a

cantilevered design that achieves substantial vertical movement of a latch member as is claimed in Appellants' Claims 1 and 29.

2. Discussion re: Patentability of Dependent Claims 2-7, 9, 11, 16, 18 under 35 U.S.C. § 102(b).

Each of Claims 2-7, 9, 11, 16, and 18 are dependent on Claim 1 (as a base claim). Therefore, the arguments above for Claim 1 apply to Claims 2-7, 9, 11, 16, and 18.

3. Conclusion

Wallberg does not anticipate Appellants' Independent Claims 1 and 29 because Wallberg does not disclose all the claim limitations of Appellants' claims or teach Appellants' invention in an enabling manner. Furthermore, Claims 2-7, 9, 11, 16, and 18, being dependent on Claim 1, and including additional limitations therein, are not anticipated by Wallberg. Therefore, Appellants respectfully request that the rejection of Claims 1-7, 9, 11, 16, 18, and 29 under 35 U.S.C. § 102(b) is withdrawn and respectfully submits that such claims are in condition for allowance.

**b. Claims 10, 12-15, 17, and 19-27 are not obvious over Wallberg**

Appellants' Independent Claim 19 is set forth below:

19. A work machine having a frame, a loader arm connected to the frame and extending forwardly therefrom, and an implement, the work machine comprising:  
an attachment frame having a centerline and being connectable to the loader arm;  
a latch member operatively associated with the attachment frame and movable between a disengaged position and an engaged position;  
a link having first and second end portions, the first end portion of the link being connected to the latch member;

a pivot member having spaced first, second, and third contact positions located thereon, the first contact position being used to pivotally connect the pivot member to the attachment frame and the second contact position being used to pivotally connect the pivot member to the second end portion of the link;

a supply of hydraulic fluid;

a circuit for pressurizing the hydraulic fluid; and

a cylinder having head and rod end portions, the head end portion being connected to the attachment frame and the rod end portion being connected at the third contact position on the pivot member, the cylinder being connected with the supply of hydraulic fluid so that upon pressurization thereof the cylinder is actuated for moving the latch member substantially vertically between the disengaged and engaged positions to respectively detach and attach the implement to the work machine.

1. Discussion re: Patentability of Independent Claim 19 under 35 U.S.C. § 103(a)

The Examiner states on Page 4 of the Office Action dated February 25, 2003 that the difference between the elements in Claim 19 and Wallberg is the location of the pivots for 9 and 6 on pivot member 7. Further, the Examiner states that Appellants' points are switched versions of pivots for 9 and 6. The Examiner concludes by stating the such a switched arrangement provides no unobvious result over the arrangement in Wallberg and, as such, is deemed an obvious alternate design arrangement.

In order to use a reference to support an appropriate 35 U.S.C. § 103 rejection, the relied upon reference must **teach the problem or its source** because a patentable invention may lie in the discovery of the source of a problem even though the remedy may be obvious once the source of the problem is identified. This is part of the "subject matter as a whole" which should always be considered in determining the obviousness of an invention under 35 U.S.C. § 103 (see *In re Peehs*, 612 F.2d 1287, 204 USPQ 835 (CCPA 1980)). Further, in *In re Nomiya*, 509 F.2d 566, 572, 182 USPQ 607, 612 (CCPA 1975), when there is no evidence of record that a person of ordinary skill in the art at the time of an applicant's invention would have expected a problem...it is not proper to conclude that an invention,

which solves this problem...would have been obvious to that hypothetical person of ordinary skill in the art. Moreover, in the *In re Kaslow* case, 707 F.2d 1366, 217 USPQ 1089 (Fed. Cir. 1983), the court has determined that the specification of the patent application must discover the source of the problem. As mentioned previous, the Federal Circuit has held that the reference must be considered in view of all the claim limitations of the claimed invention. The mere absence of an explicit requirement cannot reasonably be held as an affirmative statement that the requirement is in the reference (see *In re Evanega*, 829 F.2d 1110, 4 USPQ2d 1249 (Fed. Cir. 1987)).

A. Wallberg Does Not Teach the Problem or its Source

Appellants' invention discloses a spring held, over-center latch design for a hydraulically actuated quick coupler. As is the case with most hydraulic quick couplers having over-center latch designs, there is a possibility that the latch may "drift" upward against the resistance of the hydraulic cylinder(s), allowing for increased vibration and possibly damage to the latch members or hydraulic cylinders. Appellants, in identifying this possibility, have sought to provide a unique arrangement and connection between the components that substantially reduces such possibility, thereby increasing the life of the latch members/hydraulic cylinders. This can be seen most notably in Appellants' Fig. 4 in that, once engaged, the spring 26 urges the latch member 86 downward. Simultaneously, any urging of the spring 26 upward would be resisted because of the unique positioning of the contact positions (i.e., points, as defined by the Examiner). As can be seen in Wallberg, there would be no resistance other than the hydraulic cylinder for any drifting upward of the latch member 9 during operation. Therefore, in Wallberg, the force exerted on the hydraulic cylinder could eventually lead to leakage/wear of the piston therein. For this reason, Appellants disagree with the Examiner in that Appellants' "switched points" provide no unobvious result over the arrangement in Wallberg. As is clearly noted, quite the opposite is true. Therefore, there is no clear teaching or suggestion in Wallberg of this problem or its source and the rejection under 35 U.S.C. § 103(a) should not be sustained.

B. Wallberg does not disclose all the claim limitations of Appellants' Claim 19

The Examiner, in stating that it would be obvious to one of ordinary skill in the art to accept that the switched points on the Wallberg are an alternate to the points in Appellants' design, did not consider that one limitation of Claim 19 is totally missing from the Wallberg reference. In Appellants' Claims 19, there are four distinct components of the invention that allow for the unobvious advantage discussed above, including the latch member, the link, the pivot member and the hydraulic cylinder. As can be seen in Fig. 1 of Wallberg, there are only three distinct components, including the latch member 9, an articulated member 7, and a hydraulic cylinder. The link of Appellants' Claim 19 and its connection with the other surrounding components allows for the over-center movement of the latch member and reduces the possible upward drift thereof, once engaged (to act as a virtual locking mechanism with the other surrounding components). In Appellants' invention, the retracting force of the hydraulic cylinder must be used to disengage the latch member. Therefore, Appellants respectfully submit that the missing limitation of Wallberg be considered in light of Appellants' claims. Given that consideration, Appellants respectfully believe that it will be found that it is not obvious from Wallberg to achieve that which the Appellants disclose in Claim 19.

2. Discussion re: Patentability of Dependent Claims 10, 12-15, 17, and 20-27 under 35 U.S.C. § 103(a).

Claims 20-27 are dependent on Claim 19 (as a base claim). Therefore, the arguments above for Claim 19 apply to Claims 20-27. Further, the arguments above for Claim 19 also apply to Independent Claim 1. Therefore, the arguments above for Claim 19 apply to Claims 10, 12-15, and 17 due to their dependence on Claim 1 (as a base claim).

3. Conclusion

Wallberg does not teach or suggest Appellants' claimed invention nor disclose all the limitations of Appellants' Claim 19. Therefore, the use of the Wallberg reference does not establish a clear grounds for an obviousness rejection under 35 U.S.C. § 103(a) with regard to Appellants' Claim 19. Furthermore, Claims 20-27, being dependent on Claim 19, and including additional limitations therein, are not obvious over Wallberg. Also, the arguments for Claim 19 are also applicable to Independent Claim 1. In that regard, Appellants Claims 10, 12-15 and 17, being dependent on Claim 1, are also not obvious over Wallberg. Therefore, Appellants respectfully request that the rejection of Claims 10, 12-15, 17, and 19-27 under 35 U.S.C. § 103(a) is withdrawn and respectfully submits that such claims are in condition for allowance.

c. Claims 1-7 and 9-27 are not obvious under § 103 (a) over Albright or Youngers in view of Wallberg

1. Discussion re: Patentability of Independent Claims 1 and 19 under 35 U.S.C. § 103 (a)

The Examiner states on Page 4 of the Office Action dated February 25, 2003 that it would have been obvious to substitute for the hydraulic actuator in Albright separate cylinders pivoted to each of 54 and 56 as claimed or add cylinders to Youngers in view of the teaching in Wallberg.

In order to use a reference to support an appropriate 35 U.S.C. § 103 rejection, there must be a **basis in the art for combining or modifying the references**. Because there are differences between the subject matter claimed and the teaching of the prior art (or else a rejection under 35 U.S.C. § 102 would have sufficed), there should be some incentive in at least one or a combination of the prior art references that teach or suggest the claimed invention via a modification of at least one or more of the other prior art references.



*In re Geiger*, 815 F.2d at 688, 2 USPQ2d at 1278 (Fed. Cir. 1987). However, in order to use a reference to support an appropriate 35 U.S.C. § 103 rejection the relied upon reference must **teach the problem or its source** because a patentable invention may lie in the discovery of the source of a problem even though the remedy may be obvious once the source of the problem is identified. This is part of the “subject matter as a whole” which should always be considered in determining the obviousness of an invention under 35 U.S.C. § 103 (see *In re Peehs*, 612 F.2d 1287, 204 USPQ 835 (CCPA 1980)). Further, in *In re Nomiya*, 509 F.2d 566, 572, 182 USPQ 607, 612 (CCPA 1975), when there is no evidence of record that a person of ordinary skill in the art at the time of an applicant’s invention would have expected a problem...it is not proper to conclude that an invention, which solves this problem...would have been obvious to that hypothetical person of ordinary skill in the art. More importantly, references are **not properly combinable or modifiable if their intended function is destroyed** because there would be no technological motivation for engaging in the modification or change (see *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984)).

A. Wallberg is not properly combinable with Albright because it destroys the function of Albright

Appellants believe that there is no motivation in Wallberg for the inclusion of its separate and pivoted hydraulic cylinders in Albright because, in doing so, the intended function of Albright would be destroyed. This is quite evident after a review of Albright. The invention of Albright is the ability to connect a power operator on existing manual levers. If the horizontal power operator of Albright is removed and replaced with the separate and pivoted hydraulic cylinders of Wallberg, the operation of the Albright invention is extremely hampered in that the pivoted hydraulic cylinders would not allow for the complete engagement (or disengagement) of the latch member with the working tool. This is due to the fact that the existing manual levers "set the stage" for the position of the power operator that may be used. In order to get full engagement and disengagement from the latch member of Albright, the power operator must be positioned in a horizontal manner to pull the manual lever to the full "up" position due to the shape and positioning of the manual lever.

Also, the use of pivoted hydraulic cylinders in Albright, given the existing manual levers, would probably cause a "pinch-point" on the cylinder rod as it attempts to fully engage or disengage the manual lever. Furthermore, the positioning of separate and pivoted hydraulic cylinders in Albright would be difficult to place within the confines of the Albright quick attachment device because of the space constraints caused by the manual levers themselves. Therefore, Appellants respectfully submit that the combination of Wallberg with Albright is impermissible due to the fact that such combination would destroy the intended function of the Albright design.

B. Wallberg, in combination with Youngers, does not disclose all the claim limitations of Appellants' Claims 1 and 19 and does not teach the problem or its source

Appellants submit that neither Wallberg nor Youngers is connected in a manner that achieves substantial vertical movement between the disengaged and engaged positions, as is claimed in Appellants' Claims 1 and 29. Further, the latch member 9 & pivot pin 147 of Wallberg and Youngers, respectively, are not "true" over-center designs for a hydraulic quick coupler. Incorporating the arguments of Section (8)a1A in regard to Wallberg, Appellants will only trace the movement of the pivot pin 147 of Youngers herein. It is clear from Fig. 3 to Fig. 4, in Youngers, that the movement of the pivot pin 147 is angular. The mere replacement of the manual levers of Youngers with a hydraulic cylinder of Wallberg will not change the fact that neither of the designs include a latch member that achieves substantial vertical movement between the disengaged and engaged positions, as claimed by Appellants in Claims 1 and 19. Further, neither Wallberg or Youngers teach the problem associated with over-center latch designs or its source and Appellants incorporate the same arguments of Section (8)b1A above herein. Therefore, there is no clear teaching or suggestion in Wallberg, in combination with Youngers, of this problem or its source and the rejection under 35 U.S.C. § 103(a) should not be sustained.

2. Discussion re: Patentability of Dependent Claims 2-7 and 9-27 under 35 U.S.C. § 103(a) over Albright or Youngers in view of Wallberg

Claims 2-7 and 9-18 are dependent on Claim 1 (as a base claim) and Claims 20-27 are dependent on Claim 19 (as a base claim). Therefore, the arguments above for Claims 1 and 19 apply to Claims 2-7 and 9-18 and Claims 20-27, respectively.

3. Conclusion

The combination of Albright and Wallberg is not proper because such a combination destroys the intended function of Albright. Further, the combination of Youngers with Wallberg does not disclose all the limitations of Appellants' Claims 1 and 19. Therefore, the combination of references do not establish a clear grounds for an obviousness rejection under 35 U.S.C. § 103(a) with regard to Appellants' Claims 1 and 19. Furthermore, Claims 2-7 and 9-18 and 20-27, being dependent on Claims 1 or 19, respectively, and including additional limitations therein, are not obvious over the combination of references. Therefore, Appellants respectfully request that the rejection of Claims 1-7 and 9-27 under 35 U.S.C. § 103(a) is withdrawn and respectfully submits that such claims are in condition for allowance.

**d. Claim 10 is not obvious under § 103 (a) over Albright or Youngers in view of Wallberg, as applied to Claim 1 above, and further in view of Jones or Horton**

1. Discussion re: Patentability of Independent Claim 1 under 35 U.S.C. § 103 (a)

The Examiner states on Page 5 of the Office Action dated February 25, 2003 that it would have been obvious to divert fluid from the lifting cylinders in Albright or Youngers to the latch cylinders in view of the teaching of Jones or Horton.

Appellants rely on the arguments made in Section (8)c above for reviewing the obviousness rejection of Claim 1. In that regard, Appellants reiterate that the combination of Albright and Wallberg is not proper because such a combination destroys the intended function of Albright. Further, the combination of Youngers with Wallberg does not disclose all the limitations of Appellants' Claim 1. Therefore, the combination of references do not establish a clear grounds for an obviousness rejection under 35 U.S.C. § 103(a) with regard to Appellants' Claim 1.

2. Discussion re: Patentability of Dependent Claim 10 under 35 U.S.C. § 103(a) in view of Jones or Horton

Claim 10 is dependent on Claim 1 (as a base claim). Therefore, the arguments above for Claim 1 apply to Claim 10 and further review of Jones or Horton is moot.

3. Conclusion

The combination of Albright and Wallberg is not proper because such a combination destroys the intended function of Albright. Further, the combination of Youngers with Wallberg does not disclose all the limitations of Appellants' Claim 1. Therefore, the combination of references do not establish a clear grounds for an obviousness rejection under 35 U.S.C. § 103(a) with regard to Appellants' Claim 1. Furthermore, Claim 10, being dependent on Claim 1, and including additional limitations therein, is not obvious over the combination of references. Therefore, Appellants respectfully request that the rejection of Claim 10 under 35 U.S.C. § 103(a) is withdrawn and respectfully submits that Claim 10 is in condition for allowance.

**e. Claim 8 is not obvious under § 103 (a) over Albright or Youngers in view of Wallberg, as applied to Claim 1 above, and further in view of Doering**

**1. Discussion re: Patentability of Independent Claim 1 under 35 U.S.C. § 103 (a)**

The Examiner states on Page 3 of the Office Action dated February 25, 2003 that it well known to use slots in connections as shown by Doering at 69 to prevent binding. Further, the Examiner states that it would have been obvious to provide a slot as claimed in Wallberg in view of the teaching in Doering.

Appellants rely on the arguments made in Section (8)c above for reviewing the obviousness rejection of Claim 1. In that regard, Appellants reiterate that the combination of Albright and Wallberg is not proper because such a combination destroys the intended function of Albright. Further, the combination of Youngers with Wallberg does not disclose all the limitations of Appellants' Claim 1. Therefore, the combination of references do not establish a clear grounds for an obviousness rejection under 35 U.S.C. § 103(a) with regard to Appellants' Claim 1.

**2. Discussion re: Patentability of Dependent Claim 8 under 35 U.S.C. § 103(a) in view of Doering**

Claim 8 is dependent on Claim 1 (as a base claim). Therefore, the arguments above for Claim 1 apply to Claim 8 and further of Doering is moot.

**3. Conclusion**


The combination of Albright and Wallberg is not proper because such a combination destroys the intended function of Albright. Further, the combination of Youngers with Wallberg does not disclose all the limitations of Appellants' Claim 1. Therefore, the combination of references do not establish a clear grounds for an obviousness rejection under 35 U.S.C. § 103(a) with regard to Appellants' Claim 1. Furthermore, Claim

8, being dependent on Claim 1, and including additional limitations therein, is not obvious over the combination of references. Therefore, Appellants respectfully request that the rejection of Claim 8 under 35 U.S.C. § 103(a) is withdrawn and respectfully submits that Claim 8 is in condition for allowance.

**9) CONCLUSION**

Claims 1-27 and 29 are not unpatentable under 35 U.S.C. § 102(b) or 35 U.S.C. § 103(a) as being anticipated by or obvious over the cited art. Accordingly, the Board of Appeals is respectfully requested to reverse the rejection of the aforementioned claims.

Respectfully submitted,

A handwritten signature in dark ink, appearing to read "Diana L. Charlton", written over a horizontal line.

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July 17, 2003

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APPENDIX

1. A hydraulically actuated quick coupling device, comprising:
  - an attachment frame including a centerline;
  - a latch member operatively associated with the attachment frame and movable between a disengaged position and an engaged position;
  - a link having first and second end portions, the first end portion of the link being connected to the latch member;
  - a pivot member having spaced first, second, and third contact positions located thereon, the first contact position being used to pivotally connect the pivot member to the attachment frame and the second contact position being used to pivotally connect the pivot member to the second end portion of the link; and
  - a cylinder having head and rod end portions, the head end portion being connected to the attachment frame and the rod end portion being connected at the third contact position on the pivot member, the cylinder being operable for moving the latch member substantially vertically between the disengaged and engaged positions.
2. The hydraulically actuated quick coupling device of claim 1, wherein when the latch member is in the engaged position the connection between the pivot member and the attachment frame defines a first position and the connection between the pivot member and the cylinder defines a second position and the connection between the cylinder and the attachment frame defines a third position, the first and second position define a first line therethrough and the second and third position define a second line therethrough with the second line being positioned substantially at a ninety degree angle from the first line.
3. The hydraulically actuated quick coupling device of claim 1, including a supply of hydraulic fluid and a circuit for pressurizing the hydraulic fluid wherein the cylinder is connected with the supply of hydraulic fluid so that upon pressurization thereof the cylinder is actuated for moving the latch member.

4. The hydraulically actuated quick coupling device of claim 1, wherein each of the cylinder and link are angularly positioned in relation to the centerline of the attachment frame.

5. The hydraulically actuated quick coupling device of claim 4, wherein the angular position of the cylinder and link are each less than ninety degrees when the latch member is in the disengaged position.

6. The hydraulically actuated quick coupling device of claim 4, wherein the angular position of the cylinder is less than ninety degrees and the link is approximately ninety degrees when the latch member is in the engaged position.

7. The hydraulically actuated quick coupling device of claim 1, wherein the latch member is slidingly disposed within the attachment frame and is angular positioned approximately ninety degrees from the centerline of the attachment frame.

8. The hydraulically actuated quick coupling device of claim 1, wherein the second end portion of the link defines a slot therethrough in which the second end portion of the pivot member is connected to allow for transitional movement therein.

9. The hydraulically actuated quick coupling device of claim 3, wherein the circuit includes a means for diverting the supply of hydraulic fluid from a portion of the circuit to the cylinder.

10. The hydraulically actuated quick coupling device of claim 9, wherein the portion of the circuit from which the supply of hydraulic fluid is diverted controls a function other than the actuation of the cylinder.

11. The hydraulically actuated quick coupling device of claim 3, including: a second latch member operatively associated with the attachment frame and spaced from the first latch member, the second latch member being movable between a disengaged position and an engaged position;



a second link having first and second end portions and being spaced from the first link, the first end portion of the second link being connected to the second latch member;

a second pivot member spaced from the first pivot member and having first and second end portions and a central portion, the first end portion of the second pivot member pivotally connected on the attachment frame and the second end portion of the second pivot member pivotally connected on the second end portion of the second link; and

a second cylinder having head and rod end portions, the head end portion of the second cylinder being connected to the attachment frame and the rod end portion of the second cylinder being connected to the central portion of the second pivot member, the second cylinder being connected with the supply of hydraulic fluid so that upon pressurization thereof the second cylinder is actuated for moving the second latch member between the disengaged and engaged positions.

12. The hydraulically actuated quick coupling device of claim 11, wherein the actuation of the first and second cylinders is contemporaneous.

13. The hydraulically actuated quick coupling device of claim 12, wherein each of the second cylinder and link are angularly positioned in relation to the centerline of the attachment frame.

14. The hydraulically actuated quick coupling device of claim 13, wherein the angular position of the second cylinder and link are each less than ninety degrees.

15. The hydraulically actuated quick coupling device of claim 13, wherein the angular position of the second cylinder is less than ninety degrees and the second link is approximately ninety degrees when the latch member is in the engaged position.

16. The hydraulically actuated quick coupling device of claim 11, wherein the circuit includes a means for diverting the supply of hydraulic fluid from a portion of the circuit to the first and second cylinders.

17. The hydraulically actuated quick coupling device of claim 16, wherein the portion of the circuit from which the supply of hydraulic fluid is diverted controls a function other than the actuation of the cylinder.

18. The hydraulically actuated quick coupling device of claim 11, wherein the first and second latch members are slidingly disposed within the attachment frame and each are angular positioned substantially ninety degrees from the centerline of the attachment frame.

19. A work machine having a frame, a loader arm connected to the frame and extending forwardly therefrom, and an implement, the work machine comprising:

- an attachment frame having a centerline and being connectable to the loader arm;

- a latch member operatively associated with the attachment frame and movable between a disengaged position and an engaged position;

- a link having first and second end portions, the first end portion of the link being connected to the latch member;

- a pivot member having spaced first, second, and third contact positions located thereon, the first contact position being used to pivotally connect the pivot member to the attachment frame and the second contact position being used to pivotally connect the pivot member to the second end portion of the link;

- a supply of hydraulic fluid;

- a circuit for pressurizing the hydraulic fluid; and

- a cylinder having head and rod end portions, the head end portion being connected to the attachment frame and the rod end portion being connected at the third contact position on the pivot member, the cylinder being connected with the supply of hydraulic fluid so that upon pressurization thereof the cylinder is actuated for moving the latch member substantially vertically between the disengaged and engaged positions to respectively detach and attach the implement to the work machine.

20. The work machine of claim 19, including:

a second latch member operatively associated with the attachment frame and spaced from the first latch member, the second latch member being movable between a disengaged position and an engaged position;

a second link having first and second end portions spaced from the first link, the first end portion of the second link being connected to the second latch member;

a second pivot member spaced from the first pivot member and having first and second end portions and a central portion, the first end portion of the second pivot member pivotally connected on the attachment frame and the second end portion of the second pivot member pivotally connected on the second end portion of the second link; and

a second cylinder having head and rod end portions, the head end portion of the second cylinder being connected to the attachment frame and the rod end portion of the second cylinder being connected to the central portion of the second pivot member, the second cylinder being connected with the supply of hydraulic fluid so that upon pressurization thereof the second cylinder is actuated for moving the second latch member between the disengaged and engaged positions.

21. The work machine claim 20, wherein the actuation of the first and second cylinders is contemporaneous.

22. The work machine of claim 21, wherein each of the first and second cylinder and link are angularly positioned in relation to the centerline of the attachment frame.

23. The work machine of claim 22, wherein the angular position of the first and second cylinder and link are each less than ninety degrees when the latch member is in the disengaged position.

24. The work machine of claim 22, wherein the angular position of the first and second cylinder is less than ninety degrees and the first and second link is approximately ninety degrees when the latch member is in the engaged position.

25. The work machine of claim 19, wherein the circuit includes a means for diverting the supply of hydraulic fluid from a portion of the circuit to the first and second cylinders.

26. The work machine of claim 25, wherein the portion of the circuit from which the supply of hydraulic fluid is diverted controls a function other than the actuation of the cylinder.

27. The work machine of claim 19, wherein the first and second latch members are slidingly disposed within the attachment frame and each are angular positioned substantially ninety degrees from the centerline of the attachment frame.

28. Cancelled

29. A hydraulically actuated quick coupling device, comprising:  
an attachment frame including a centerline;  
a latch member operatively associated with the attachment frame and movable between a disengaged position and an engaged position;  
a pivot member having spaced first, second, and third contact positions located thereon, the first contact position being used to pivotally connect the pivot member to the attachment frame and the second contact position being used to pivotally connect the pivot member with the latch member; and

a cylinder having head and rod end portions, the head end portion being connected to the attachment frame and the rod end portion being connected at the third contact position on the pivot member, the cylinder being operable for moving the latch member substantially vertically between the disengaged and engaged positions.